## Remarks

Claims 1-20 are pending in the application. Claims 1, 2, 13 and 14 have been amended. Claims 11-12 have been canceled without prejudice to applicant's rights to pursue the subject matters in a future application.

## Rejection Under 35 U.S.C. §112, Second Paragraph

Claim 2 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The claim is rejected for reciting "R is selected from but not limited to the group consisting of". Applicant submits that claim 2 has been amended to recite the proper term "selected from the group consisting of" to obviate the rejection. Accordingly, Applicant respectfully requests that the rejection of claim 2 under 35 U.S.C. §112, second paragraph, be withdrawn.

## Rejection Under 35 U.S.C. §102(b)

Claims 1-3 and 9-10 were rejected under 35 U.S.C. 102(b) as being anticipated by Furman et al. (PNAS 83:8333 (1996)). The Examiner contends that Furman et al. teach an assay for thymidine kinase 1 that involved tritium labeled AZT and measurement of radioactivity in the phosphorylated product. The rejection is respectfully traversed.

Claim 1 has been amended to recite a method for diagnosis or for monitoring the progression of cancer or tumors in a subject, comprising the step of relating the amount of 5'-phosphorylated 3'-derivative of thymidine formed to progression of cancer or tumors. The present specification teaches relating the activity of thymidine kinase to progression of cancer (*see* patent publication [0052], [0054]-[0057]). Examples 9 and 12 provide

experimental data to support the teaching. In contrast, Furman et al. do not teach or suggest relating the activities of thymidine kinase to cancer progression. Accordingly, Applicant respectfully requests that the rejection of claims 1-3 and 9-10 under 35 U.S.C. 102(b) be withdrawn.

Claims 1-4, 6, 9 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by Goujon et al. (J. Immun. Meth. 218:19 (1998)). The Examiner contends that Goujon et al. teach an immunological ELISA based method for determining intracellular level of AZT-MP. The rejection is respectfully traversed.

Claim 1 has been amended to recite a method for diagnosis or for monitoring the progression of cancer or tumors in a subject, comprising the step of relating the amount of 5'-phosphorylated 3'-derivative of thymidine formed to progression of cancer or tumors. The present specification teaches relating the activity of thymidine kinase to progression of cancer (*see* patent publication [0052], [0054]-[0057]). Examples 9 and 12 provide experimental data to support the teaching. In contrast, Goujon et al. do not teach or suggest relating the activities of thymidine kinase to cancer progression. Accordingly, Applicant respectfully requests that the rejection of claims 1-4, 6, 9 under 35 U.S.C. 102(b) be withdrawn.

**Rejection Under 35 U.S.C. §103(a)**

Claims 1-4, 6, 9-17 and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Goujon et al. (J. Immun. Meth. 218:19 (1998)) in view of O'Neill (U.S. Patent 5,698,409). The rejection is respectfully traversed.

Goujon et al. has been discussed above. The Examiner cited O'Neill for teaching on methods of purifying thymindine kinase 1. The Examiner also contends that O'Neill confirms the correlation between level of active TK1 and various cancer.

Applicant submits that O'Neill only teaches uses of anti-TK1 Mabs for detecting high level of TK1 in cancer samples. In contrast, the instant method differs from O'Neill in that the present method is an enzymatic method, not an immunological method as taught by O'Neill. Accordingly, the present method is faster and simpler. Moreover, as disclosed in Example 9, the use of anti-TK1 antibody results in a non sensitive method for detecting TK activity in sera ([146], last 9 lines), thereby clearly indicating the advantage of relying on an enzymatic assay instead of an immunological method.

In view of the above remarks, Applicant submit that even though assuming it is appropriate to combine the cited references (Applicant does not concede it is appropriate to combine), the combined references would not lead to the present invention because the combined references does not teach each and every aspect of the present invention. Specifically, the teaching of the combined references does not teach an enzymatic method having the advantages as disclosed herein. Accordingly, Applicant respectfully requests that the rejection of claims 1-4, 6, 9-17 and 19 under 35 U.S.C. 103(a) be withdrawn.

Claims 1-6, 9-17 and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Goujon et al. and O'Neill, and further in view of Sabelle et al. (JACS 124:4874 (2002)). The rejection is respectfully traversed.

Goujon et al. and O'Neill have been discussed above. The Examiner cited Sabelle et al. for teaching on using chemiluminescence to detect acetylcholinesterase activity in an ELISA format. As discussed above, O'Neill only teaches an immunological method to detect TK1. O'Neill does not teach an enzymatic method having the advantages disclosed herein. Moreover, the present specification teaches that the use of anti-TK1 antibody results in a non sensitive method for detecting TK activity in sera. Hence, Applicant submits that the combination of Goujon et al., O'Neill and Sabelle et al. does not render the instant invention obvious because the combined references does not teach each and every aspect of the present invention. Accordingly, Applicant respectfully requests that the rejection of claims 1-6, 9-17 and 19 under 35 U.S.C. 103(a) be withdrawn.

Claims 1-4, 6-7, 9-17 and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Goujon et al. and O'Neill, and further in view of Karlstrom et al. (Mol. Cell Biochem. 92:23 (1990)). The rejection is respectfully traversed.

Goujon et al. and O'Neill have been discussed above. The Examiner cited Karlstrom et al. for teaching on using DTE as thiol reducing agent to increase stability of TK1 in assays. As discussed above, O'Neill only teaches an immunological method to detect TK1. O'Neill does not teach an enzymatic method having the advantages disclosed herein. Moreover, the present specification teaches that the use of anti-TK1 antibody results in a non sensitive method for detecting TK activity in sera. Hence, Applicant submits that the combination of Goujon et al., O'Neill and Karlstrom et al. does not render the instant invention obvious because the combined references does not teach

each and every aspect of the present invention. Accordingly, Applicant respectfully requests that the rejection of claims 1-4, 6-7, 9-17 and 19 under 35 U.S.C. 103(a) be withdrawn.

Claims 1-4, 6 and 8-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Goujon et al. and O'Neill, and further in view of Stefanovic et al. (Ren. Physiol. Biochem. 11:89 (1988)). The rejection is respectfully traversed.

Goujon et al. and O'Neill have been discussed above. The Examiner cited Stefanovic et al. for teaching on using using UMP to inhibit phosphatases. As discussed above, O'Neill only teaches an immunological method to detect TK1. O'Neill does not teach an enzymatic method having the advantages disclosed herein. Moreover, the present specification teaches that the use of anti-TK1 antibody results in a non sensitive method for detecting TK activity in sera. Hence, Applicant submits that the combination of Goujon et al., O'Neill and Stefanovic et al. does not render the instant invention obvious because the combined references does not teach each and every aspect of the present invention. Accordingly, Applicant respectfully requests that the rejection of claims 1-4, 6 and 8-20 under 35 U.S.C. 103(a) be withdrawn.

If a telephone interview would be of assistance in advancing the prosecution of the subject application, Applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

No fee other than the ONE THOUSAND AND TWENTY DOLLARS for a three month extension of time is deemed necessary in connection with the filing of this Amendment. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 50-1891.

Respectfully submitted,

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on the date shown below.

Albert Wai-Kit Chan 10/10/06
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